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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,051	12/22/2004	David Antoine Christian Roovers	NL 020570	6804

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EXAMINER	
PAUL, DISLER	

ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,051	ROOVERS, DAVID ANTOINE CHRISTIAN	
	Examiner	Art Unit	
	DISLER PAUL	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/26/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 9 is rejected under 35 U.S.C. 101 because, the "process" claims fail to tie with another statutory class (such as a Machine type of apparatus) or transform underlying subject matter such as (article or materials) to a different state or thing and thus, claim 9 is directed to non-statutory subject matter.

Claim 10 is rejected under 35 U.S.C. 101 because they pertain to non-statutory subject matters.

"Data structures **not claimed** as embodied in computer-readable media are descriptive material per se and **are not statutory** because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (Claim to a data structure per se held nonstatutory.). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to b realized, and is thus statutory." See Interim Guidelines on 35 USC 101, Annex IV (a): Functional Descriptive Material.

Claim 10 recites signal per se which is non-statutory subject matter.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over balan et al.(Us 7,158,933 B2) and Shozakai et al. (US 7,440,891B1).

Re claim 1, Balan et al. disclose of an audio enhancement system, comprising a signal input for carrying a distorted desired signal z, and a reference signal input (fig.1 wt (11); col.4 line 55-60), and a spectral processor coupled to both signal inputs for processing the distorted desired signal by means of a reference signal x, acting as an estimate for the distortion of the desired signal, characterized in that the spectral processor is equipped for said processing such that a factor C' is determined (fig.1 wt (13,17); col.4 line 63-67; col.5 line 1-15/factor as in K), whereby said estimate is a function of C' times the spectral power of the reference signal, and the factor C' is determined as the spectral ratio between those components of the signals z and x (col.4 line 40-47 & 63-67; col.5 line 1-15/ ratio of

the two signals wherein being K in between the two signals with multiple factor).

While, Balan et al. disclose of the signals with time (col.4 Line 55-60; col.5 line 15-20/signals as with current time). But, Balan et al. fail to disclose of the specific wherein such signals are essentially stationary with time. But, shozakai et al. disclose of a system wherein the specific wherein such signals are essentially stationary with time (col.10 line 30-37 & line 45-55). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Balan et al. and Shozakai et al. as a whole, with incorporating the specific wherein such signals are essentially stationary with time for purpose of determining an accurate speech detection for background noise level irrespective of the noise level.

Re claim 2, the audio enhancement system according to claim 1, characterized in that the factor C' is defined by the ratio of the inherent minimum of the spectral powers of the distorted desired signal and the inherent minimum of the spectral powers of the reference signal, whereby both minima are determined over a time span (col. 4 lien 40-50; col.5 line 1-15/all signals including minimum in time frame).

Re claim 3, the audio enhancement system according to claim 2, characterized in that the time span contains at least inherently having one pause in the distorted desired signal (col.5 line 15-22 & line 53-57/since wherein no speech detected).

Re claim 4, the audio enhancement system according to claim 3, characterized in that the time span last a certain time (fig.3; col.5 line 15-20/time frame). But, the combined teaching of Balan et al. and Shozakai et al. as a whole, fail to disclose of the specific wherein such time span lasts at least 4 to 5 seconds. But, official notice is taken having a time span lasts at least 4 to 5 seconds is a matter of inventor's preference. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Balan et al. and Shozakai et al. as a whole, with incorporating the specific wherein such time span lasts at least 4 to 5 seconds for dynamically determining noise spectral in filtering.

Re claim 5, the audio enhancement system according to claim 1, characterized in that the respective spectral powers are defined by some positive function of the spectral power concerned (fig.3 wt (spectrum) including positive) and spectral magnitude, But, the combined teaching of Balan et al. and Shozakai et al. as a whole, fail to disclose of the specific wherein such as the spectral magnitude shaving a smoothed spectral density. But, official notice is taken the concept of having the spectral magnitude as smooth spectral density is

the designer's need. Thus, it would have been obvious to have modified the combined teaching of Balan et al. and Shozakai et al. as a whole, with the specific wherein such as the spectral magnitude having a smoothed spectral density for determining the speech enhance system.

Re claim 7, the audio enhancement system according to claim 1, characterized in that the spectral powers are smoothed spectral powers (see claim 5).

Re claims 9-10 have been analyzed and rejected for similar reason as in claim 1.

Re claim 8, Balan et al. disclose of a system, in particular a communication system, for example a hands-free communication device, such as a mobile telephone, a speech recognition system or a voice controlled system, which system is provided with an audio enhancement system, the audio enhancement system comprising a signal input for carrying a distorted desired signal z, a reference signal input, and a spectral processor coupled to both signal inputs for processing the distorted desired signal by means of a reference signal x acting as an estimate for the distortion of the desired signal, characterized in that the spectral processor is equipped for said processing such that a factor C' is determined, whereby said estimate is a function of C'

times the spectral power of the reference signal, and the factor C' is determined as the spectral ratio between those components of the signals z and x, which are essentially stationary with time (see claim 1, with voice controlled device).

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over balan et al.(Us 7,158,933 B2) and Shozakai et al. (US 7,440,891B1) and Suzuki et al. (US 6,108,428).

Re claim 6, the audio enhancement system according to claim 1, While, the combined teaching of Balan et al. and Shozakai et al. as a whole, disclose of the further characterized in that the spectral processor comprises registers for storing values of the spectral powers (col.3 line 50-65).

But, the combined teaching of Balan et al. and Shozakai et al. as a whole, fail to disclose of the specific wherein such register being of the shift register for storing. But, Suzuki et al. disclose of a system wherein the similar concept of having register being of the shift register for storing (col.1 line 40-50). Thus, taking the combined teaching of Balan et al. and Shozakai et al. and Suzuki et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Balan et al. and Shozakai et al. as a whole, by incorporating the register

being of the shift register for storing for enhancing speech signals that may further be processed with improve accuracy.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/
Primary Examiner, Art Unit 2614

/D. P./
Examiner, Art Unit 2614